

Adolescent Women: A Vulnerable Population

Maria Trent, MD, MPH, FAAP, FSAHM

2014 Maryland STI Update
May 22, 2014



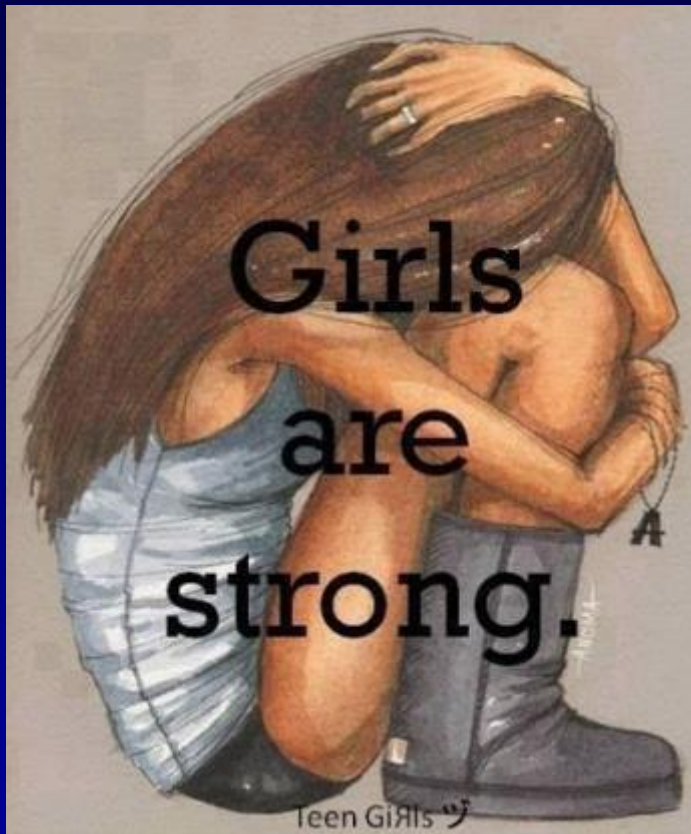
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- I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity.
- I do not intend to discuss off-label use of products in this presentation.

Objective

- Use clinical scenarios, epidemiology, and public health outcomes data to understand sexual health vulnerability for young women
- To identify strategies for public health professionals to take a more active role in prevention

vul·ner·a·ble



- Susceptible to physical or emotional attack or harm
- (of a person) in need of special care, support, or protection because of age, disability, or risk of abuse or neglect

MAY 28, 2014
Nigeria's Stolen Girls / Botched Executions / Plus: My Kid Hates Frozen by Joe Stein

TIME

RAPE

THE CRISIS IN HIGHER EDUCATION

BY ELIZA GRAY



Trafficking of Persons, Especially Women and Children: USA Routes



1) Canada, 2) USA, 3) Mexico, 4) Guatemala, 5) El Salvador, 6) Nicaragua, 7) Costa Rica, 8) Jamaica, 9) Haiti, 10) Dominican Republic, 11) Puerto Rico, 12) Colombia, 13) Ecuador, 14) Peru, 15) Brazil, 16) Bolivia, 17) Chile, 18) Ecuador, 19) Cuba, 20) Green Republic, 21) Hungary, 22) Romania, 23) Ukraine, 24) Russia, 25) Italy, 26) Austria, 27) India, 28) Nepal, 29) Cameroon, 30) Malawi, 31) Georgia, 32) Armenia, 33) Azerbaijan, 34) Uzbekistan, 35) India, 36) Burma, 37) China, 38) Laos, 39) Thailand, 40) Cambodia, 41) Vietnam, 42) Malaysia, 43) Indonesia, 44) Philippines, 45) New B. Korea, 46) South Korea, 47) Japan, 48) Korea, 49) Taiwan.

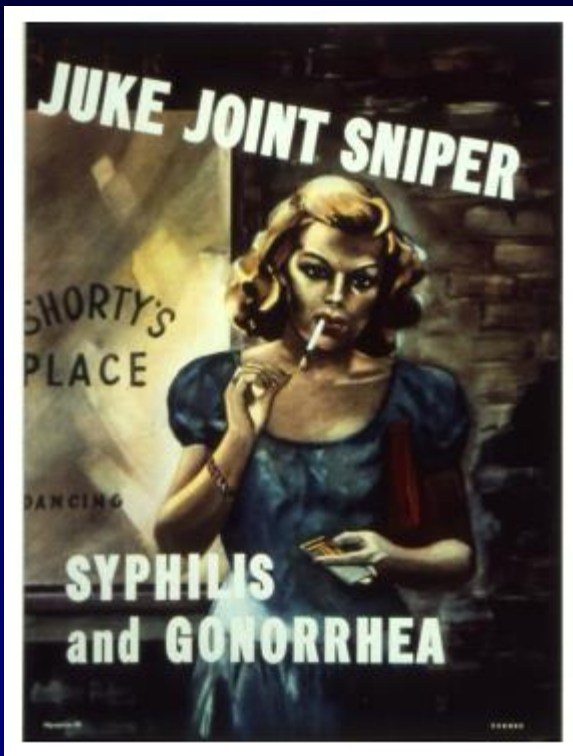
Routes represent at least one documented case of trafficking of persons. See individual country reports for additional information.

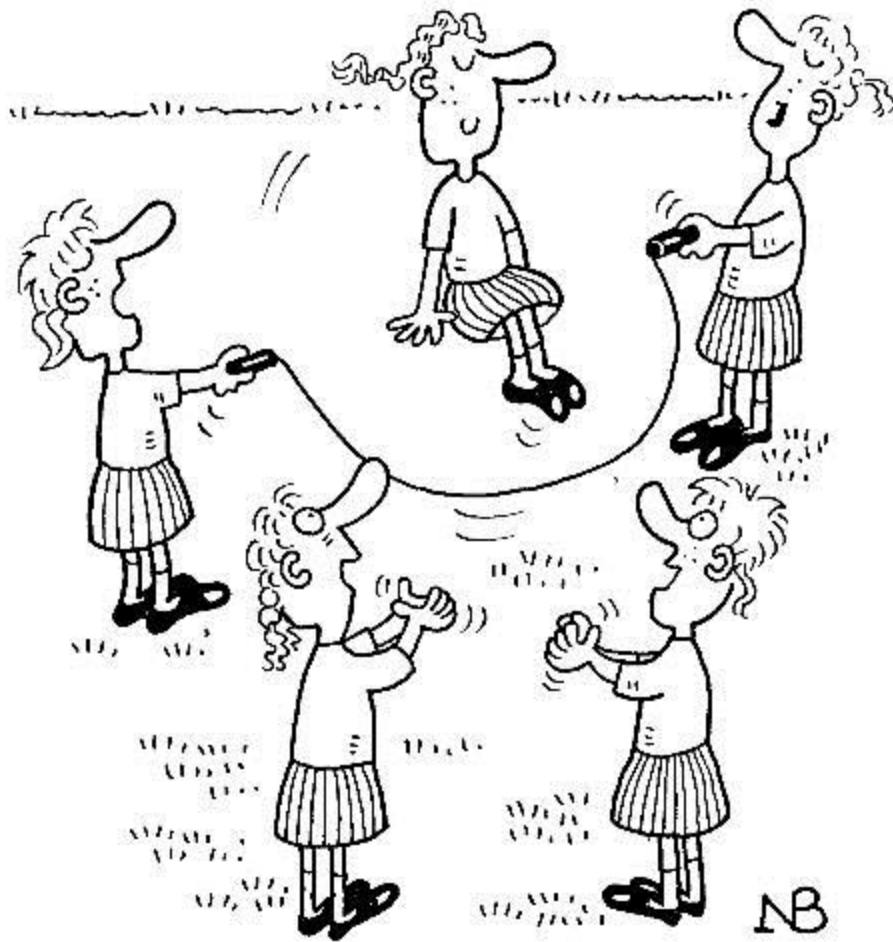
Legend: Countries with trafficking activity, Transit Stop
Source: ©The Protection Project, Johns Hopkins University, School of Advanced International Studies
Created by Neha Malhotra, June 2007

Civil Discourse Women's Sexual Health Rights?



Virgins, Vamps, Vixens, or Victims?



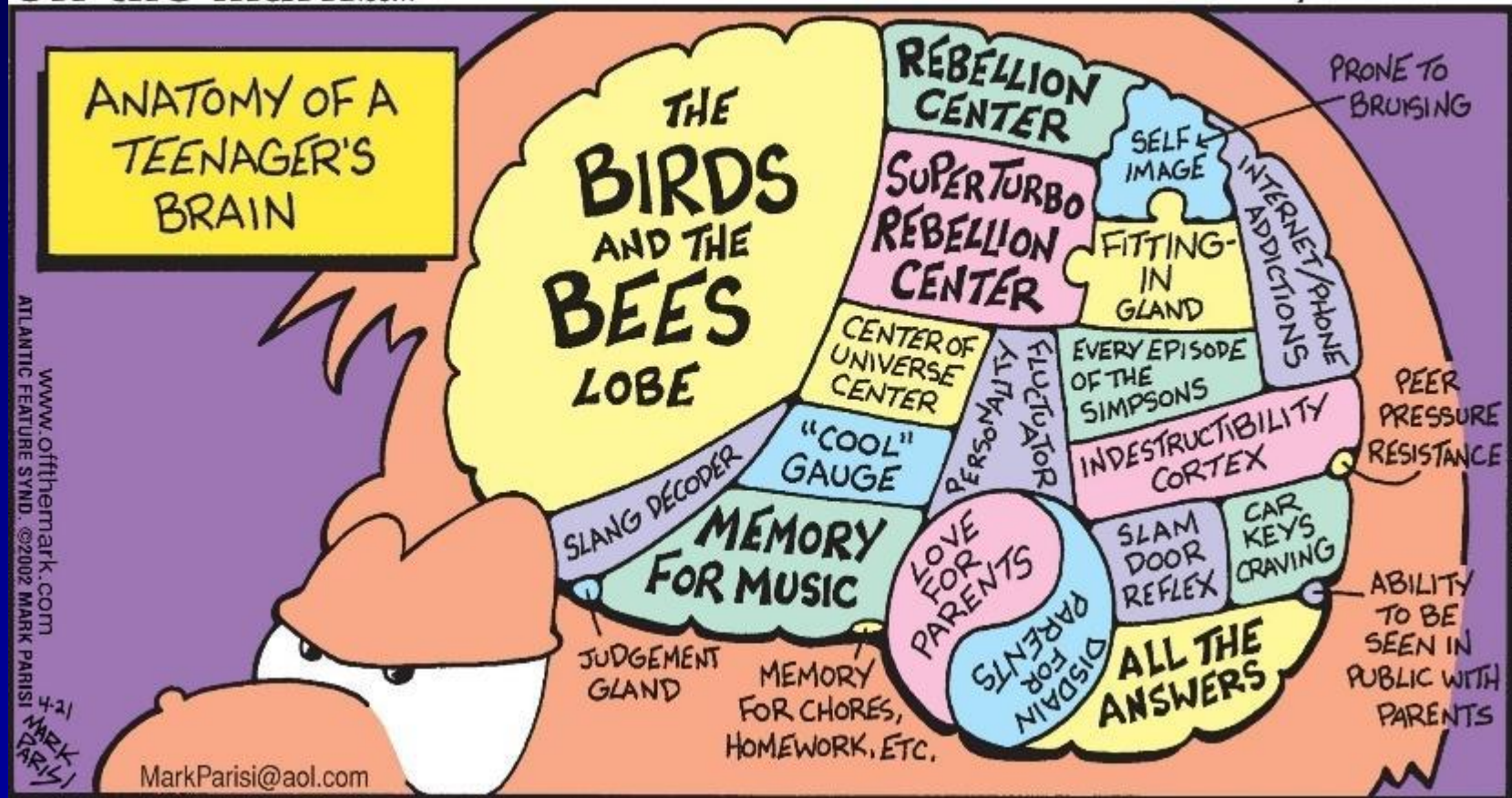


"Gonorrhea, syphilis, chlamydia, herpes,
HIV positive, genital warts..."

Biological, Developmental & Ecological Issues

off the mark.com

by Mark Parisi



Added Biological Vulnerability for Adolescent Girls

Cervix



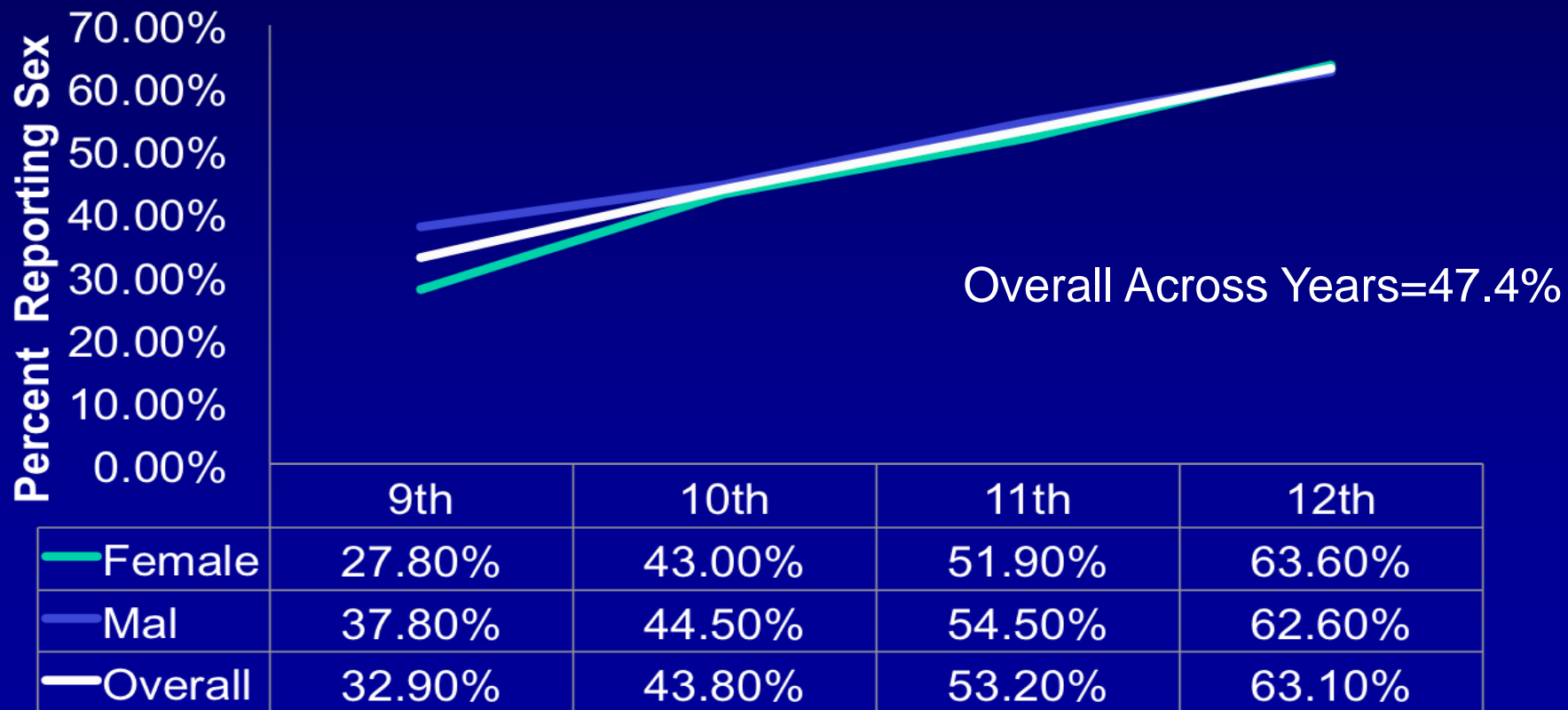
Ectopy



Courtesy Dr. S. Jean Emans, Boston Children's Hospital

Percentage of US High School Students Who Have Had Sex

YRBSS, 2011 (N=15, 503)



Sexual Risk-Taking Baltimore, 2007

- Sexual Behavior
 - 67% HS students have had intercourse
 - 18.6% before age 13 years
 - 12% more than 4 lifetime partners
 - 26 % did NOT use condoms at last sex
 - 12.2% drank alcohol or used drugs before last sex
 - 11% did NOT any method to prevent pregnancy
 - Baltimore adolescents engage in enhanced STI prevention behaviors compared with many jurisdictions around the country
 - STI health disparities remain

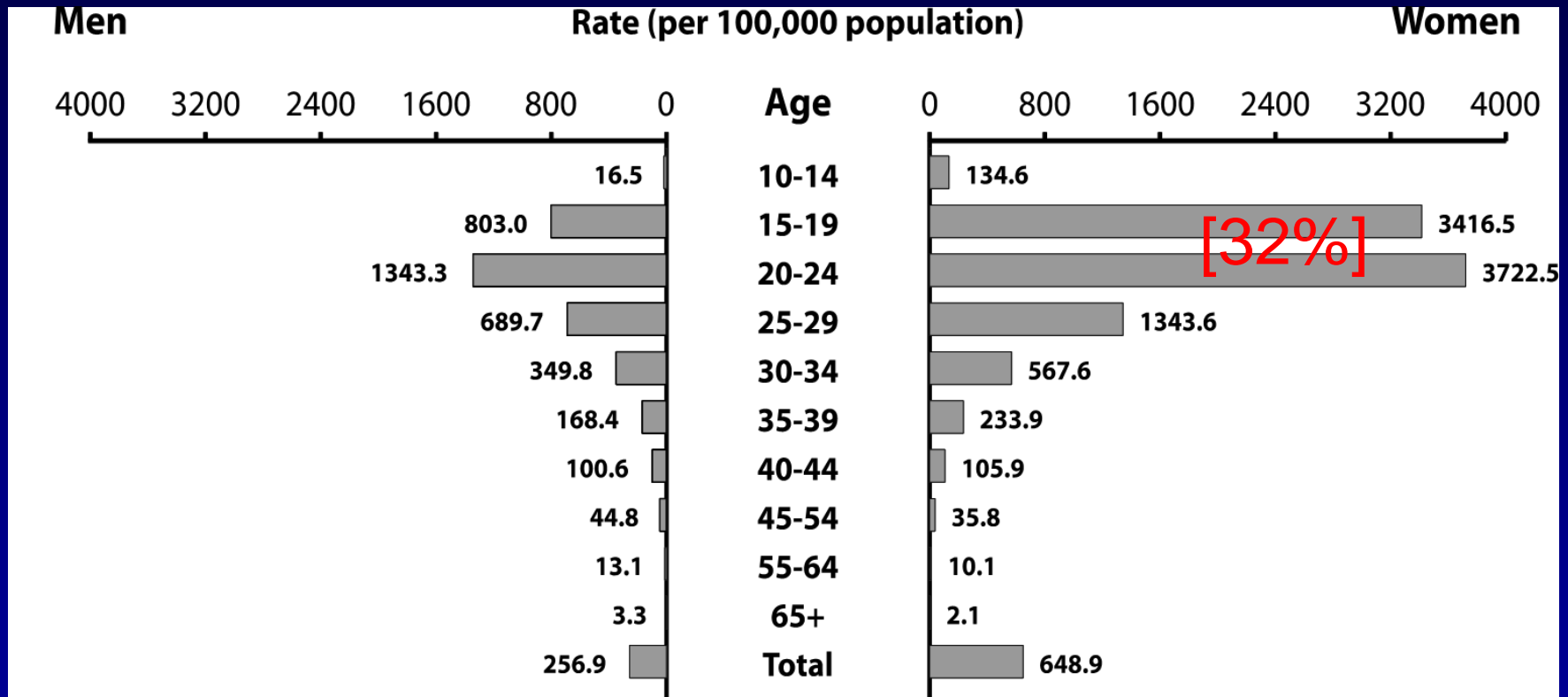
Case 1

- 16 year old female presents for well PE
- HEADDS assessment reveals that she recently started having sex with first boyfriend w/ inconsistent condom use
- Parents unaware, though mother tries to talk with her
- LMP 1 week ago, no sex since that time
- PE completely benign. Tanner V female for breasts/pubic hair, no external genital lesions.
- Patient screened for STIs, anemia, cholesterol, had negative rapid HIV testing & decided to start the vaginal ring as she considers a LARC as a part of family planning counseling

Case 1 Continued

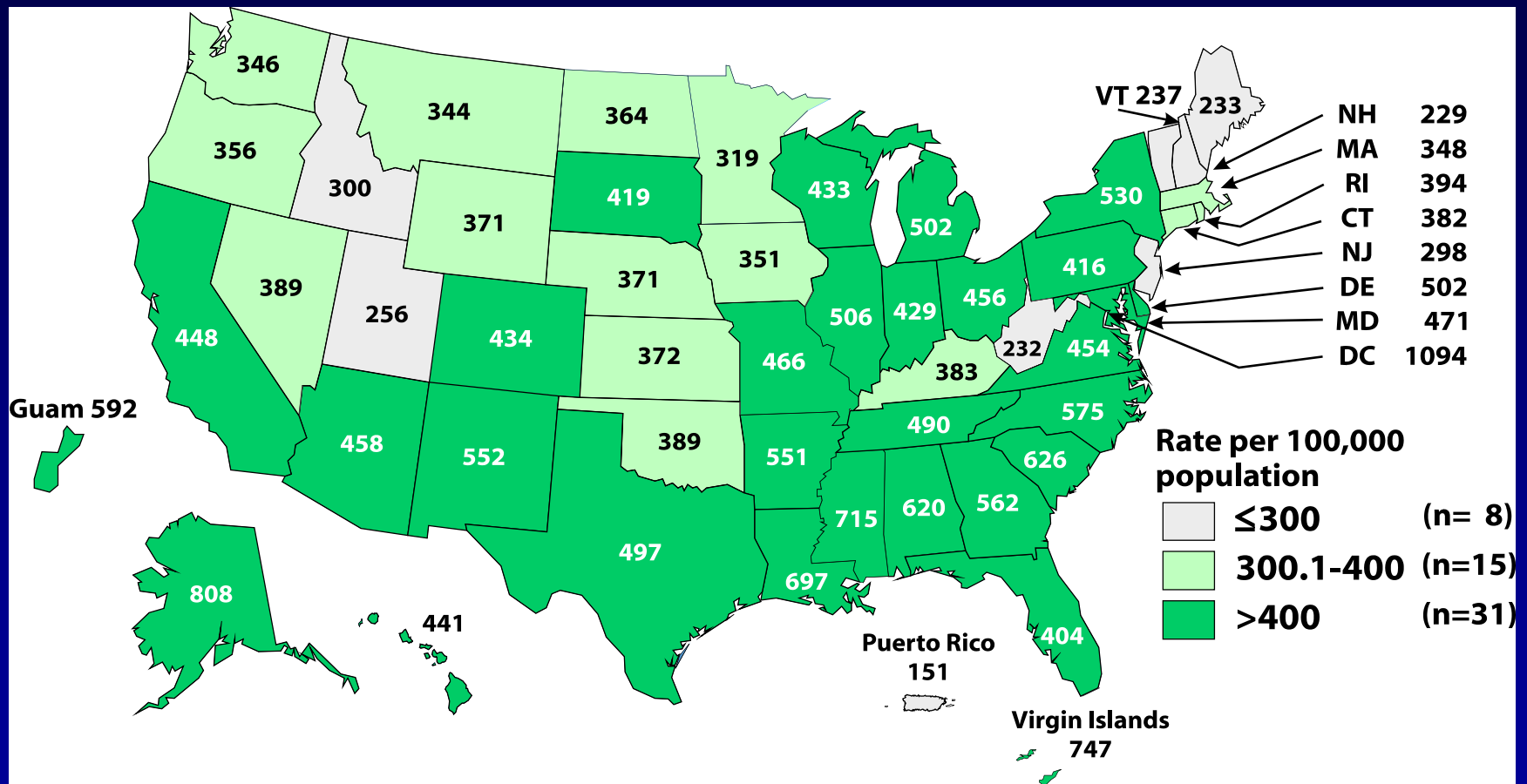
- Asymptomatic screening for Chlamydia trachomatis (CT) is positive
- Patient returns with her BF for treatment after you play phone tag for a week
- Now with abdominal pain and CMT on bimanual examination
- Requires treatment for PID
- Pt's 17 year old BF (also your patient) requests to be screened and treated for a 'drip'

Chlamydia — Age- and sex-specific rates: United States, 2011



Source: Centers for Disease Control & Prevention, <http://www.cdc.gov/std/stats11/slides.htm>

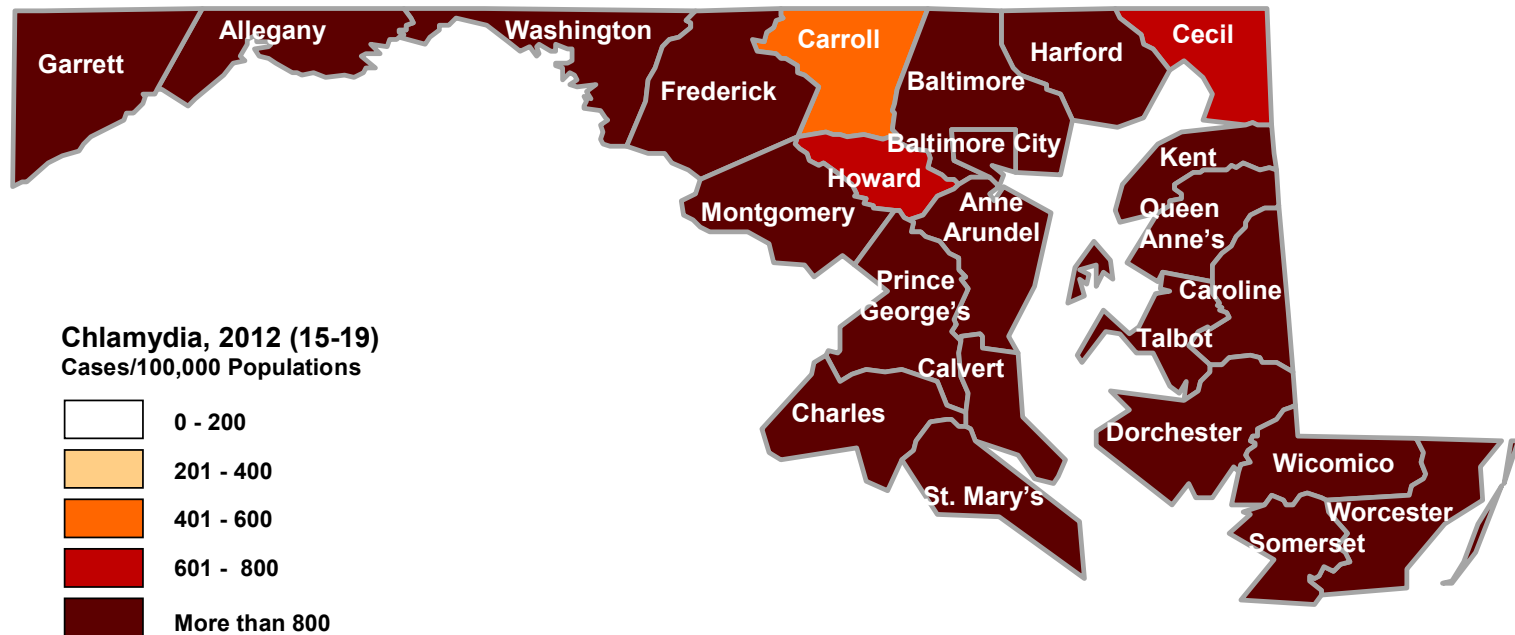
Chlamydia—Rates by States, United States and Outlying Areas, 2011



Source: Centers for Disease Control & Prevention, <http://www.cdc.gov/std/stats11/slides.htm>

What about Maryland?

Incidence Rates by Jurisdictions 15-19 Year Olds Only



Maryland Department of Health & Mental Hygiene,
<http://phpa.dhmh.maryland.gov/OIDPCS/CSTIP/SitePages/sti-data-statistics.aspx>

CT Screening is a HEDIS Measure

- Health Plan Employer Data and Information Set Measure
 - Tool used by more than 90 percent of America's health plans to measure performance on important dimensions of care and service
- Women 16-25 should be screened for CT if she:
 - Suspects Pregnancy
 - Has a history of STIs
 - Seeking/needing contraceptives
 - Seeking gynecologic services
 - Indicates sexual assault
 - Indirectly indicates she has had sexual intercourse

•Screen w/GC
•HIV screening should be discussed with all adolescents
•Other STD screening

- 1) NCQA, <http://www.ncqa.org/tabid/59/Default.aspx>
- 2) CDC, <http://www.cdc.gov/std/Chlamydia/hmoletter.pdf>
- 3) CDC STD Treatment Guidelines, 2010, www.cdc.gov

CT Screening Among 16-25 year olds US Health Plans

Region	# Health Plans	# SA Enrollees	2000	2007	Change 2000-2007
USA	583	2,809,100	25.3%	41.6%	64.4%
Midwest	158	567,400	23.0%	38.5%	67.4%
Northeast	116	711,500	22.5%	45.5%	102.2%
South	173	803,900	25.1%	37.3%	48.6%
West	136	726,300	30.8%	45.0%	46.1%
Maryland	19	88,700	36.9%	49.1%	33.1%

MMWR, 2009; 58 (22):623

Pelvic Inflammatory Disease

- Affects >800,000 women per year in the United States (20% Adolescents)
- Accounts for 300,000 hospitalizations annually
- Leads to more than 2 million outpatient visits annually
- Causes one or more long term sequelae in $\frac{1}{4}$ of patients
 - Infertility
 - Ectopic Pregnancy
 - Chronic Pelvic Pain

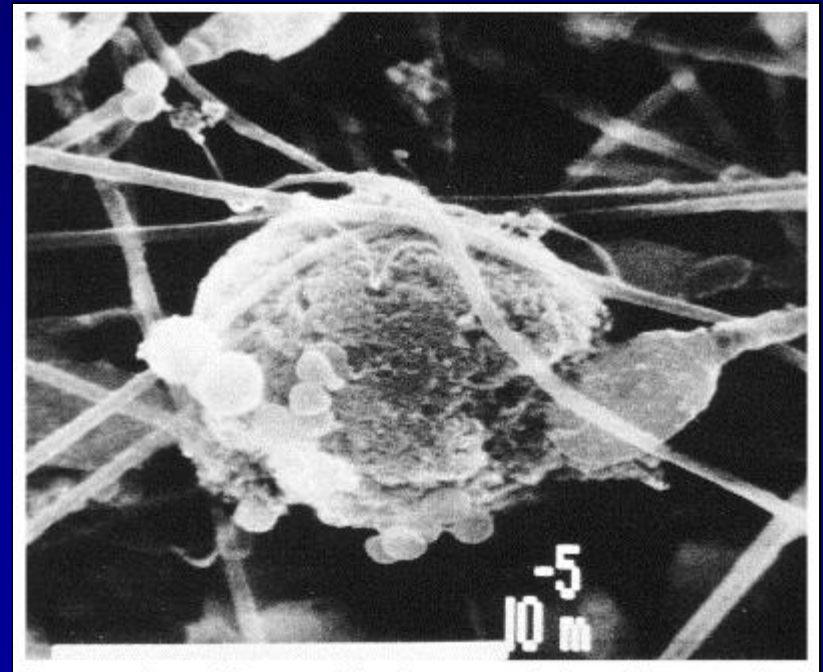
Understanding PID Risk

Risk Factors

- Adolescent Female (AGE!)
 - 1:8 for 15 y compared with 1:80 in 25y
- New Partner
- Multiple Sexual Partners
- Use of Intrauterine Device
 - First 3 weeks after insertion
- History of STD
- History of Previous PID
- Incomplete treatment, no partner therapy (bacteriospermia)
- Douching
- Bacterial Vaginosis

Protective Factors

- Barrier contraceptive use
- OCPs and progestin only contraceptives



Does Outpatient Treatment Work for Adolescents?

PID Evaluation and Clinical Health Study (PEACH)

Ness RB, et al. Am J Obstet Gynecol. 2002;186:929-937 (Trial)
Smith KJ, et.al. Sex Transm Dis. 2007;34:108-112. (Cost-Effectiveness)

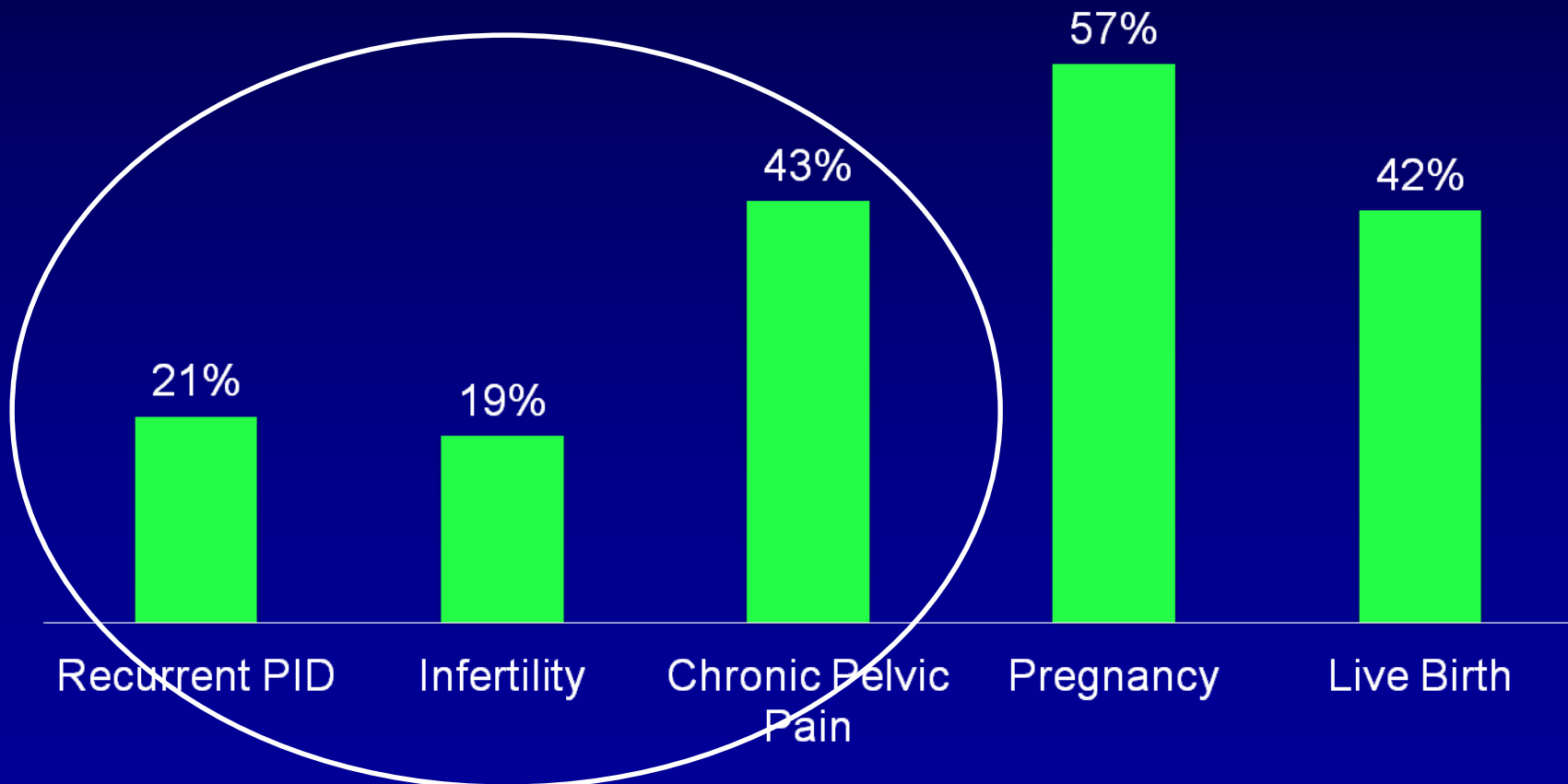


Adolescent/Young Adults

- Managing Care Alone
- Medication Adherence Low
- Risk Reduction Needs High
- 72 Hour Follow Up Low
- Risk for Recurrent Disease
- Future Fertility at Risk

Misinterpretation of PID Evaluation & Clinical Health (PEACH) Trial Data?

PEACH OUTCOMES

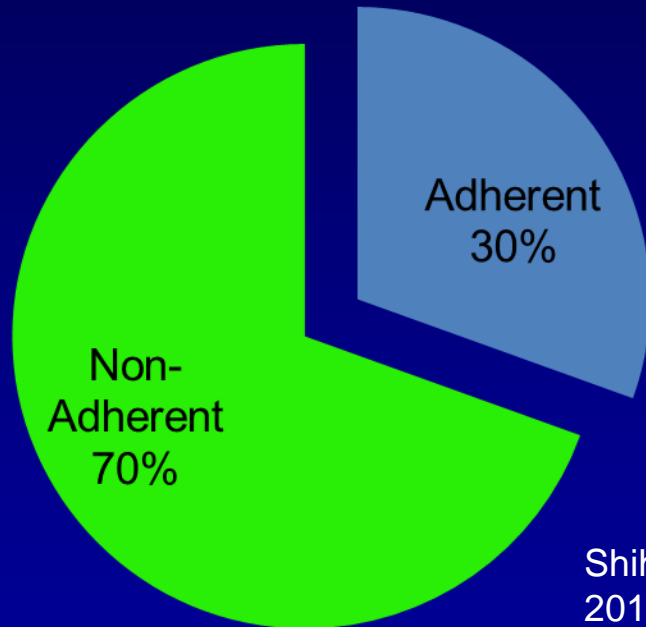


Trent, Bass, Ness, & Haggerty, Arch Pediatr Adolesc Med. 2011 Jan;165(1):49-54.

National Provider Adherence to CDC Guidelines in US EDs

Provider Adherence to CDC Guidelines

National Hospital Ambulatory Medical Care Survey

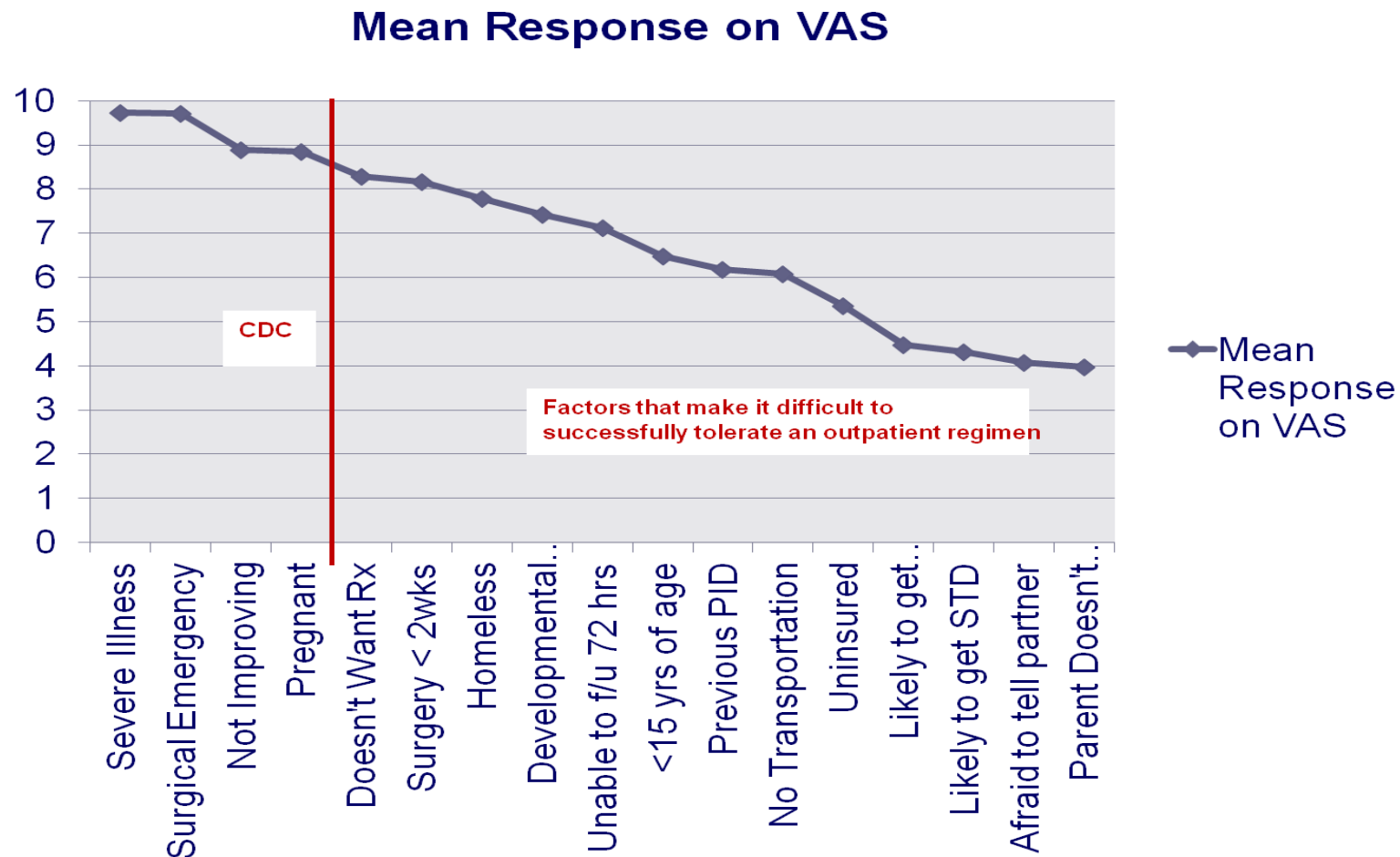


- No subspecialty consultation 5 x less likely to adhere
- Adolescents fared the worst (76% vs 68% for non-adherence)
- Medication regimens problematic
- 38% No antibiotics or pain management

Shih TY, Gaydos CA, Rothman RE, Hseih YH. Sex Trans Dis, 2011, 38 (4): 299-305

Goyal M, Hersh A, Luan X, Localio R, Trent M, Zaoutis T. Are emergency departments appropriately treating adolescent pelvic inflammatory disease? JAMA Pediatr. 2013 Jul;167(7):672-3.

Provider Ambivalence PID Management



Underestimating Impact on Adolescents

Mean VAS and Median TTO Health Utility Valuations and Summary Results of Linear and Quantile Regression Analyses

Health State	Mean VAS (SD)		β	p	Median TTO (IQR)		Coeff	p
	Adol	Parent			Adol	Parent		
Outpatient Treatment	62	76	-13.9	<.001	0.98	1.0	-0.18	<.001
Inpatient treatment	57	74	-18.1	<.001*	0.96	1.0	0.037 **	<.001*
Ectopic	55	73	-19.3	<.001*	0.98	1.0	-0.018	<.001
Infertility	59	68	-12.0	.001*	1.0	1.0	0	1.0
Chronic Pelvic Pain	48	61	-13.5	<.001	0.98	0.98	0	1.0

*Controls for minority status, ** Controls for minority status and history of STI

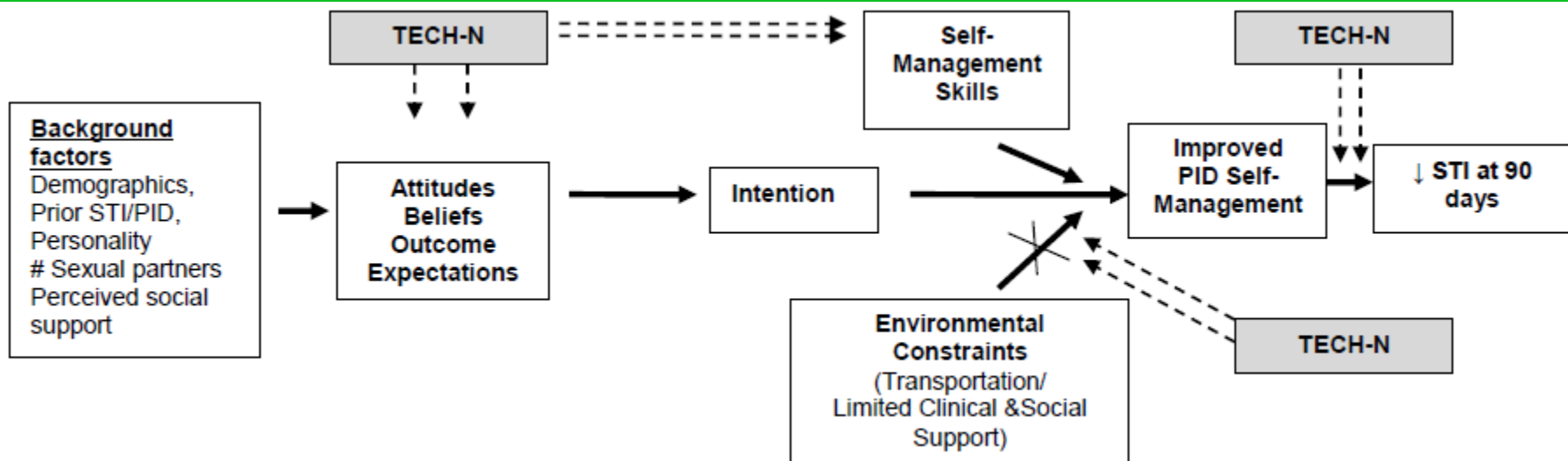
Technology Enhanced Community Health-Nursing RCT (R01 NR13507)



- SMS reminders (medication, appointments, adherence support)
- Community Health Nursing visits (72 hour clinical visit & STI Prevention Program)

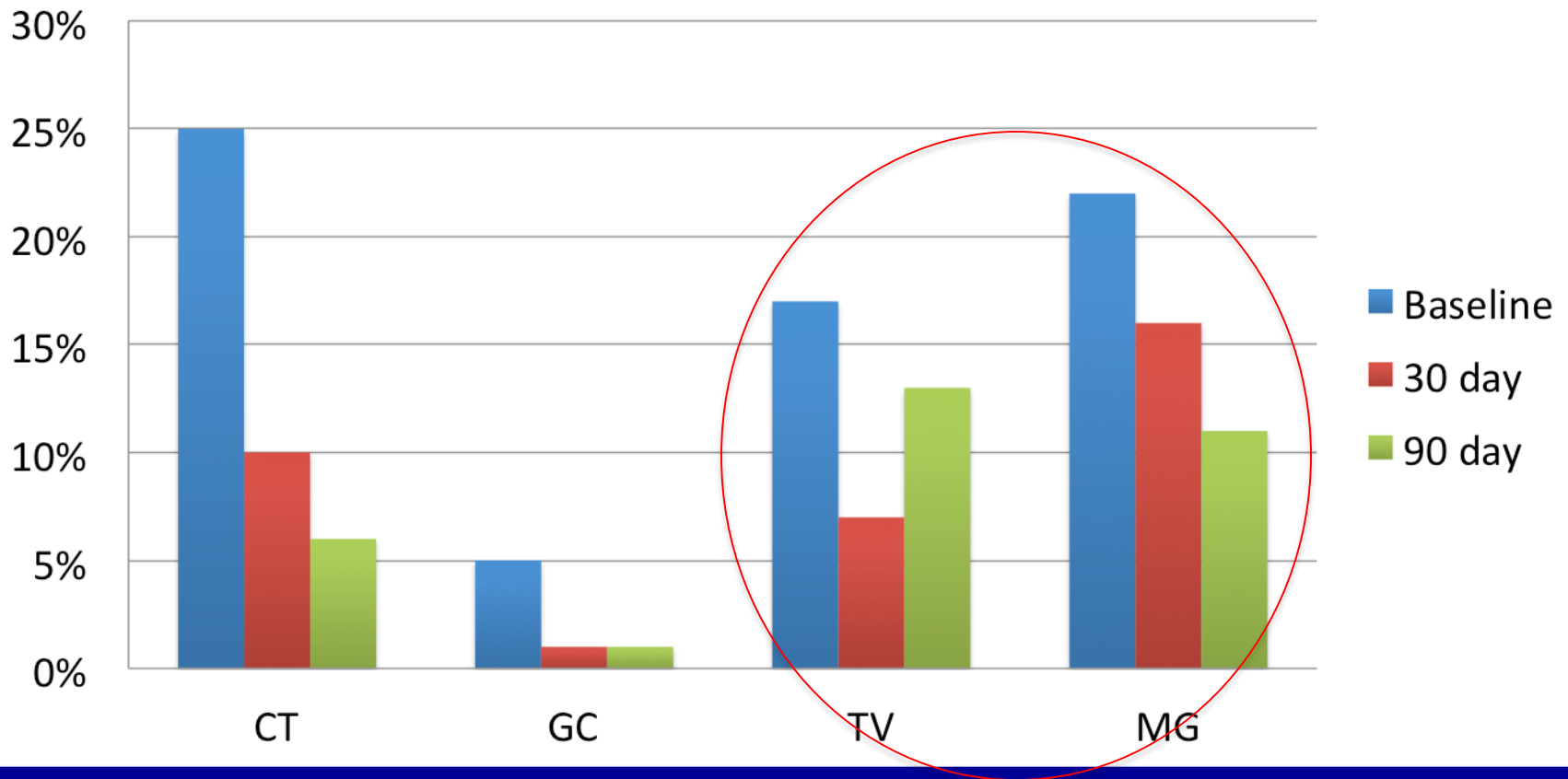


RESPECT YOURSELF!
PROTECT YOURSELF!
BECAUSE YOU ARE WORTH
IT!!!



Lab Tests Over Time

Lab results at Baseline, 30-days, & 90 days



Trent M, Preliminary data TECH- N Study, 2014

Case 2

- Patient is a 15 year old female who presents to SBHC for routine GYN care
- Patient has 1 sexual partner; boy from neighborhood
- 17 year old partner [also a patient] w/ recent incarceration—had MSM contact & multiple female contacts since released [girlfriend unaware]
- They have had sex 5 times without a condom over the last 6 months
- The last time was yesterday
- She receives Emergency Contraception, STI Screening, and HIV testing
- Her HIV test is positive

Sexual Concurrency



Journal of Adolescent Health 38 (2006) 179–185

JOURNAL OF
ADOLESCENT
HEALTH

Original article

What you don't know can hurt you: Perceptions of sex-partner concurrency and partner-reported behavior

Chavonne D. Lenoir, M.P.H.^{a,*}, Nancy E. Adler, Ph.D.^b, Dina L. G. Borzekowski, Ed.D.^a,
Jeanne M. Tschann, Ph.D.^b, and Jonathan M. Ellen, M.D.^c

^aDepartment of Population and Family Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland

^bDepartment of Psychiatry, School of Medicine, University of California, San Francisco, California

^cDepartment of Pediatrics, School of Medicine, Johns Hopkins University, Baltimore, Maryland

Manuscript received October 15, 2004; manuscript accepted January 13, 2005.

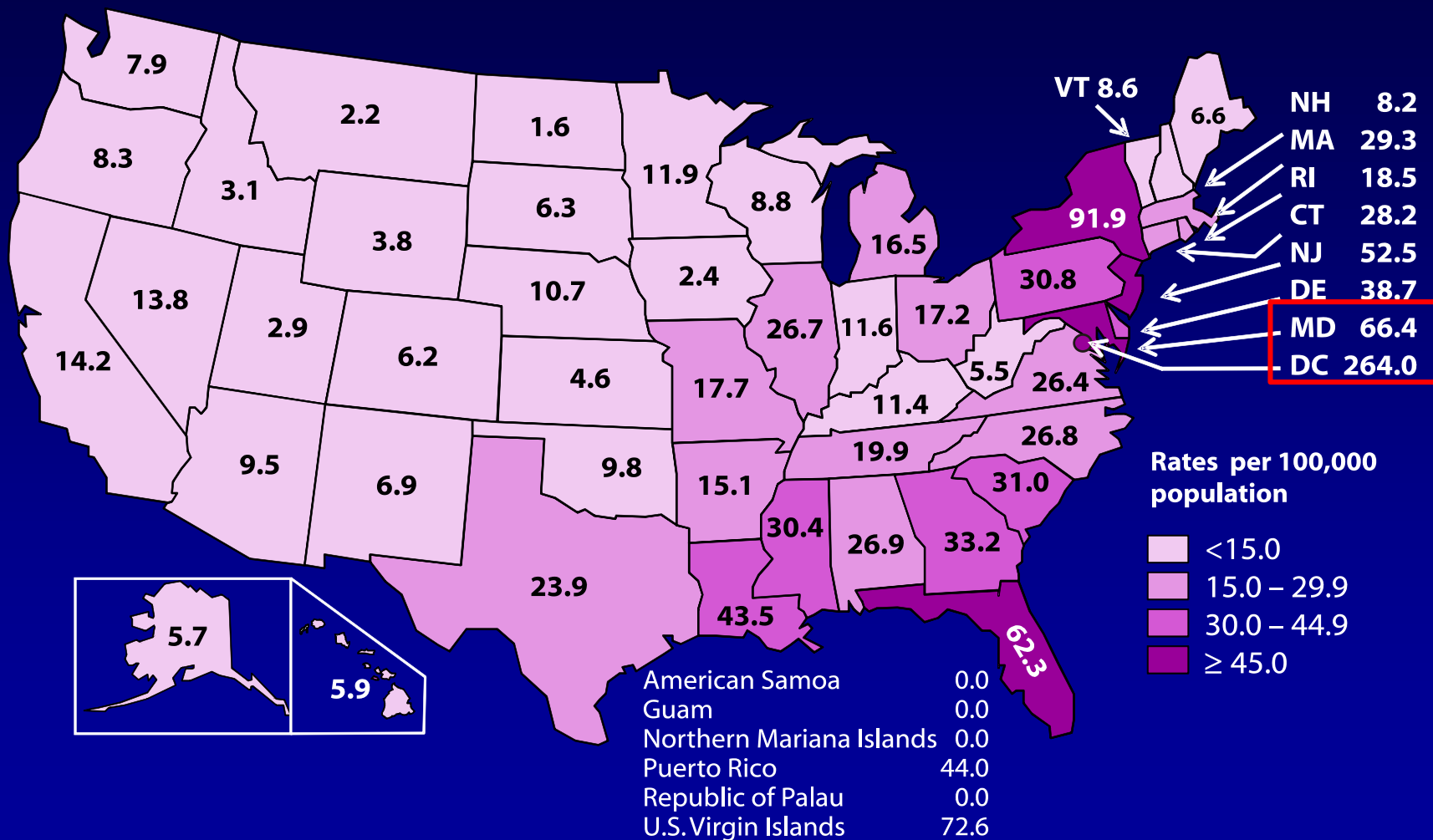
Among Baltimore girls who thought they were in a monogamous relationship, almost 40% were not.



Rates of Adolescents Aged 13–19 Years Living with Diagnosed HIV Infection, Year-end 2010—United States and 6 Dependent Areas

N = 8,631

Total Rate = 28.1

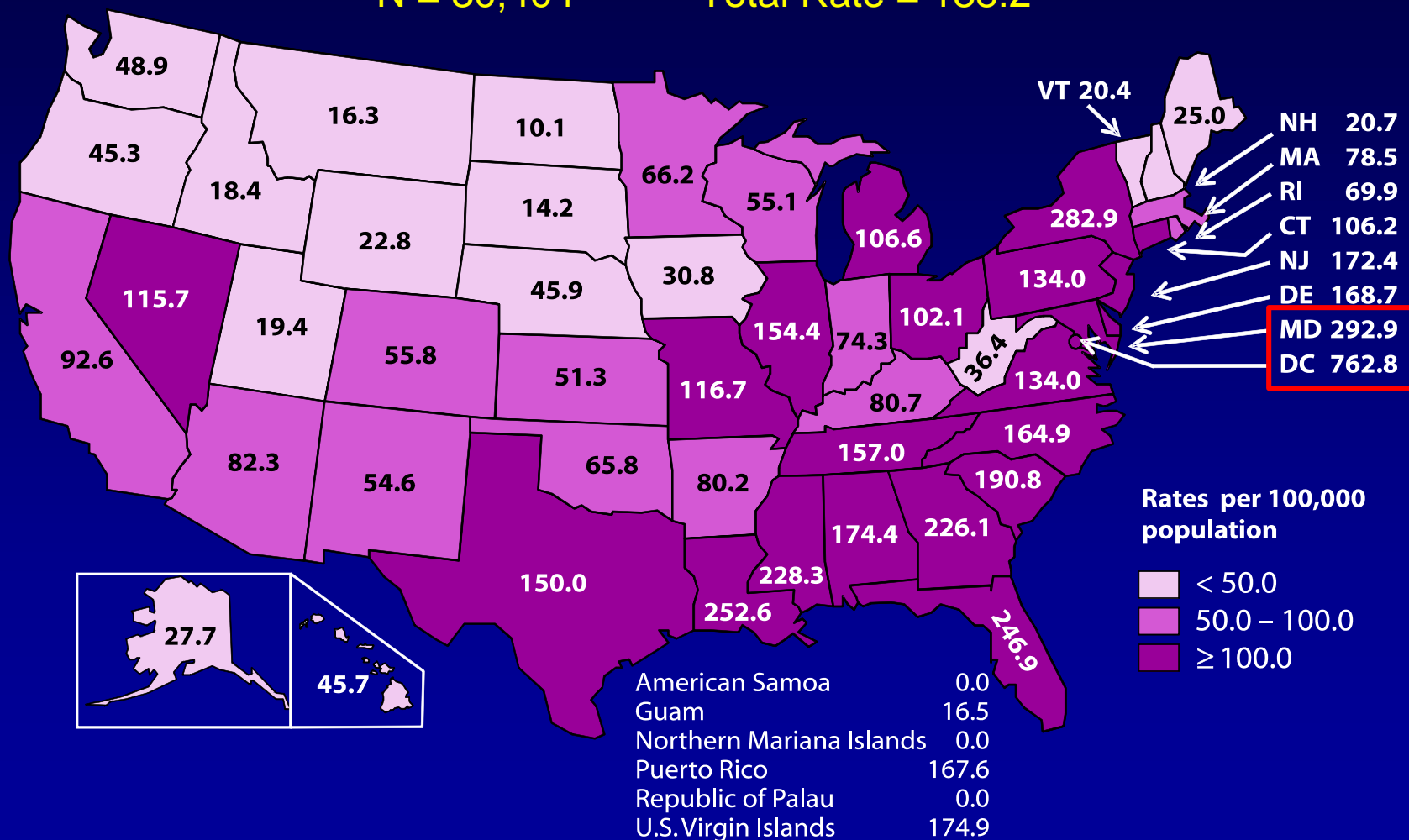


Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.

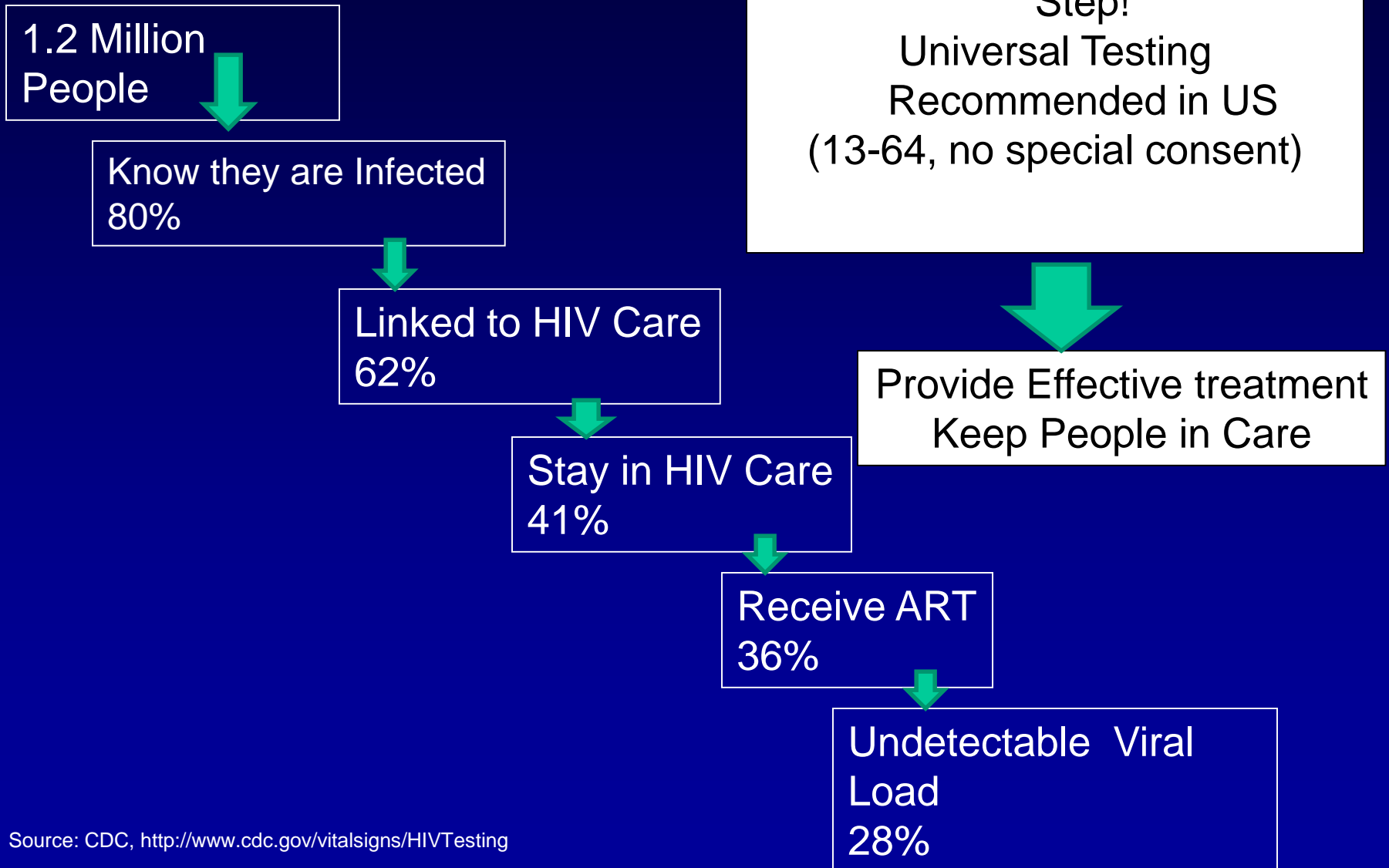
Rates of Young Adults Aged 20–24 Years Living with Diagnosed HIV Infection, Year-end 2010—United States and 6 Dependent Areas

N = 30,404

Total Rate = 138.2



Living with HIV in United States



HIV Health Disparities

Figure 1: Estimated New HIV Infections in the United States, 2010, for the Most Affected Subpopulations

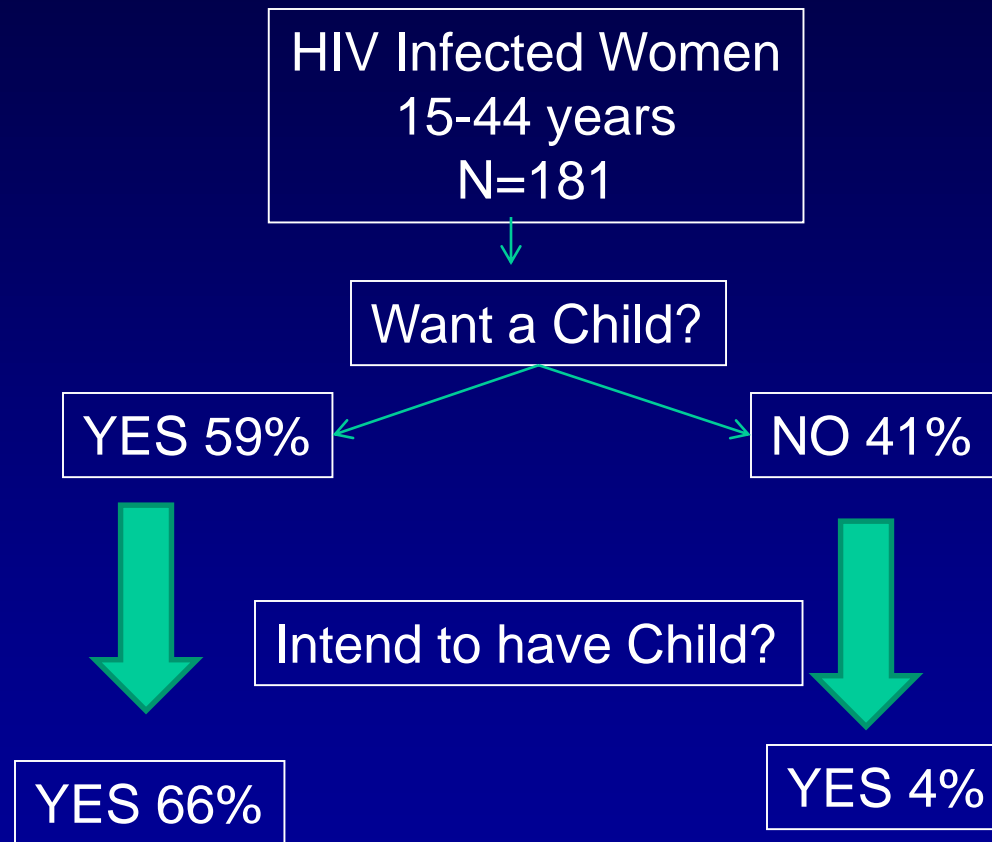


Challenge for Women of Reproductive Age

- Cross cultural value of motherhood
- Importance of future childbearing for teens & young adults¹
- HIV diagnoses do not diminish desire for children
- HIV does not prevent STI acquisition
- Important not to miss windows of opportunity for care seeking young women
- Perinatal infection could be eliminated with screening, prenatal care, use of ART



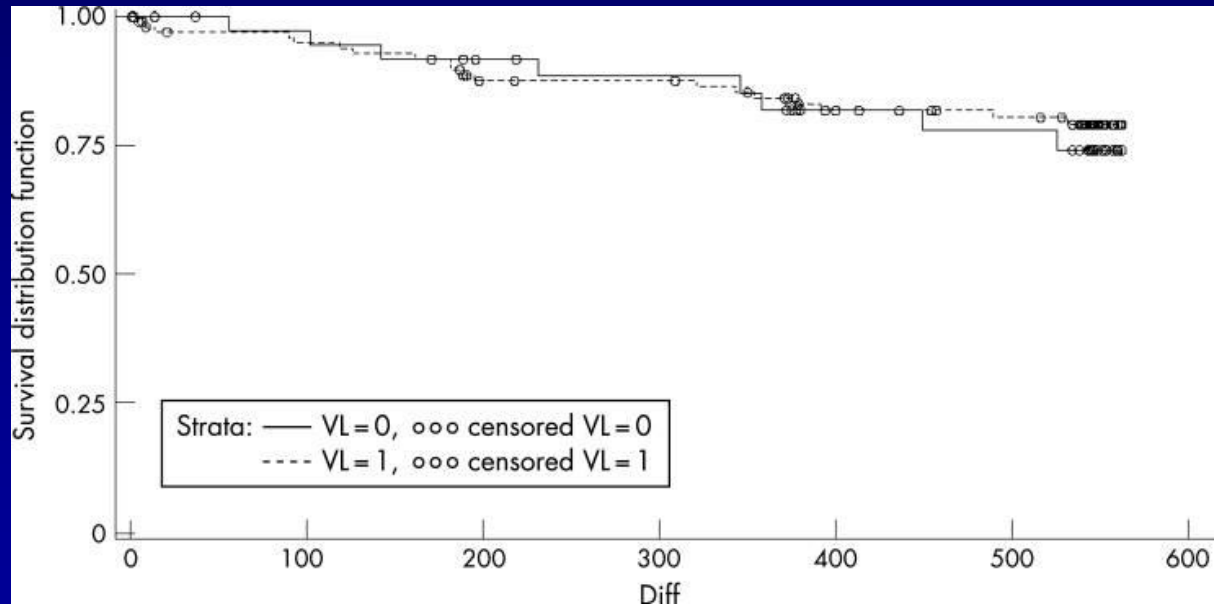
Childbearing Desires/Intentions HIV + Women



Finocchario-Kessler S, Sweat MD, Dariotis JK, Trent ME, Kerrigan DL, Keller JM, Anderson JR, **Understanding high fertility desires and intentions among a sample of urban women living with HIV in the United States**, AIDS Behav. 2010 Oct;14(5):1106-14.

Continued STI Acquisition after HIV

- 18- month longitudinal follow-up female adolescents/young adults in care (ATN)
- Many HIV-positive young women in care will be diagnosed with at least one STI
- Acquire STIs independent of the likelihood of HIV transmission based on VL status



Trent M, Chung S, Ellen JM, Adolescent HIV/AIDS Trials Network, Sex Transm Infect.

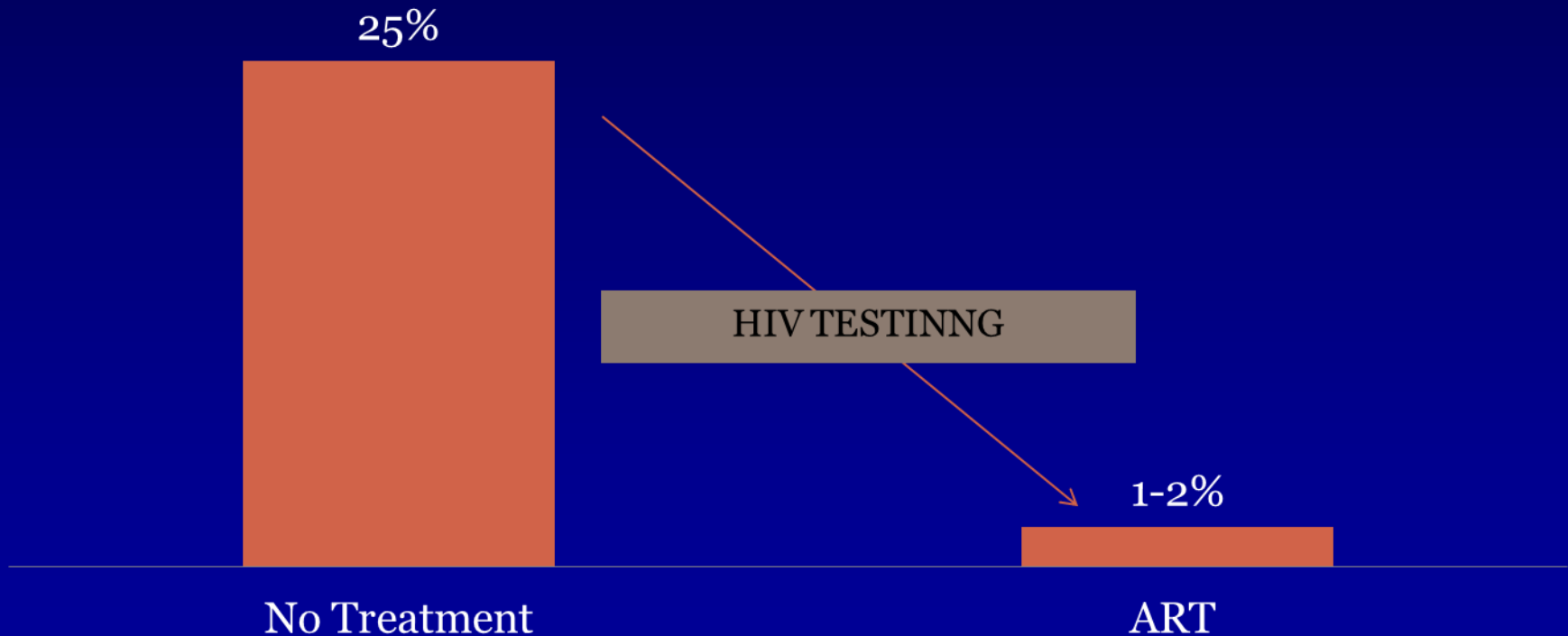
New sexually transmitted infections among adolescent girls infected with HIV. 2007 Oct;83(6):468-9.

Desire for Pregnancy Associated with Increased Risk Behavior Among Women with HIV

- Increased rates of intercourse
- Decreased condom use
- Increased partner concurrency
- Increased rates of unprotected sex with a non-concordant partner
- Higher number of previous sexually transmitted infections (STIs)

Screening & Treatment Works

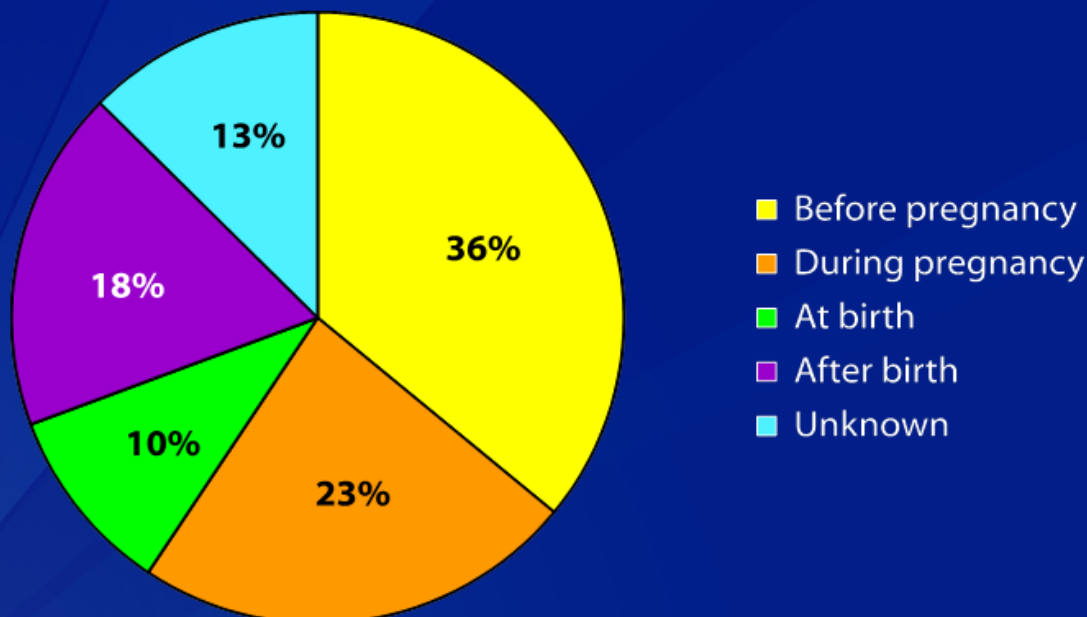
Perinatal HIV Transmission Rates Based on Maternal Treatment



Women are Often Screened Too Late

Time of Maternal HIV Testing among Infants with Perinatally Acquired HIV Infection, Birth Years 2007–2010—46 States

N = 374



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting.



Source: Centers for Disease Control & Prevention, HIV Surveillance data,
<http://www.cdc.gov/hiv/topics/surveillance/resources/slides/index.htm>

Treatment is Available in the United States

Drug Class	Brand Names
Multi-Class Combinations	Atripla, Complera
Nucleoside Reverse Transcriptase Inhibitors (NRTIs)	Combivir, Emtriva, Epivir, Epzicom, Hivid, Retrovir, Trizivir, Truvada, Videx, Videx EC, Viread, Zerit, Ziagen
Nonnucleoside Reverse Transcriptase Inhibitors (NNRTIs)	Edurant, Intelence, Rescriptor, Sustiva, Viramune, Viramune XR
Protease Inhibitors (PIs)	Agenerase, Aptivus, Crixivan, Fortovase, Invirase, Kaletra, Lexiva, Norvir, Prezista, Rayatez, Prezista, Viracept
Fusion Inhibitors	Fuzeon
Entry Inhibitors - CCR5 co-receptor antagonist	Selzentry
HIV integrase strand transfer inhibitors	Isentress

- Affordable Care Act
 - Testing
 - Treatment for Children
 - Insurers can't exclude based on HIV status
- Many patients still rely on Medicaid or Ryan White Funded Programs



<http://www.fda.gov/forconsumers/byaudience/forpatientadvocates/hivandaidsactivities/ucm118915.htm>

<http://www.pbs.org/wgbh/pages/frontline/social-issues/endgame-aids-in-black-america/why-some-with-hiv-still-cant-get-treatment/>



CT Vaccine
Ocular Trachoma Animal
Model
Caldwell, 2012
Research on Human
Vaccine Underway

Think About Feasibility of CT
Vaccination From Public Health
Perspective Using HPV as a
Model

Human Papillomavirus (HPV)

DNA virus with >100 genotypes, including 15 oncogenic types
Worldwide prevalence of HPV ~630 million infected women

In U.S. current cost of HPV-associated disease

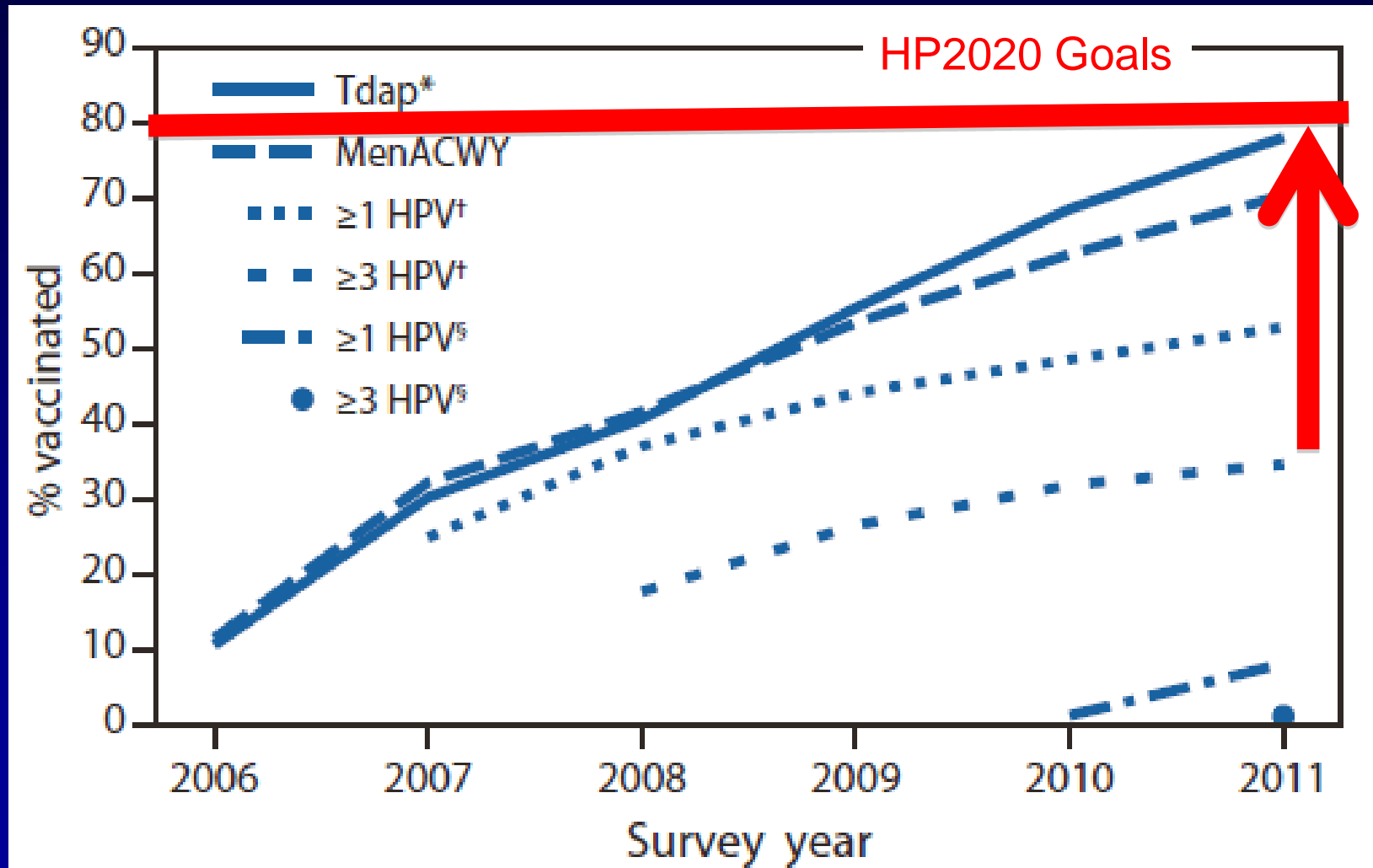
\$ 8.0 billion each year!

Causes

- cervical cancer (necessary cause)
- genital warts
- anal cancer
- penile cancer
- vaginal cancer
- oropharyngeal (tonsillar) cancer
- recurrent respiratory papillomatosis (RRP)



Estimated Vaccine Coverage in the United States, CDC



Vaccine Efficacy Varies by HPV Exposure

Table 14

Effectiveness of GARDASIL in Prevention of HPV 6, 11, 16, or 18-Related Genital Disease in Girls and Women 16 Through 26 Years of Age, Regardless of Current or Prior Exposure to Vaccine HPV Types

Endpoint	Analysis	GARDASIL or HPV 16 L1 VLP Vaccine		AAHS Control		% Reduction (95% CI)
		N	Cases	N	Cases	
HPV 16- or 18-related CIN 2/3 or AIS	Prophylactic Efficacy*	9346	4	9407	155	97.4 (93.3, 99.3)
	HPV 16 and/or HPV 18 Positive at Day 1**	2870	142	2898	148***	-- [†]
	Girls and Women Regardless of Current or Prior Exposure to HPV 16 or 18 [‡]	9836	146	9904	303	51.8 (41.1, 60.7)
HPV 6-, 11-, 16-, or 18-related Genital Warts	Prophylactic Efficacy*	8761	10	8792	252	96.0 (92.6, 98.1)
	HPV 6, HPV 11, HPV 16, and/or HPV 18 Positive at Day 1**	2501	51 [§]	2475	55 [§]	-- [†]
	Girls and Women Regardless of Current or Prior Exposure to Vaccine HPV Types [‡]	8955	61	8968	307	80.3 (73.9, 85.3)
HPV 6- or 11-related Genital Warts	Prophylactic Efficacy*	7769	9	7792	246	96.4 (93.0, 98.4)
	HPV 6 and/or HPV 11 Positive at Day 1**	1186	51	1176	54	-- [†]
	Girls and Women Regardless of Current or Prior Exposure to Vaccine HPV Types [‡]	8955	60	8968	300	80.1 (73.7, 85.2)

Parental Reasons for Refusal (Mother-Daughter Dyad Study)

Reason for Non-Vaccination	%
Vaccine Side Effect	36%
Concern about danger to daughter	36%
Provider non-communication	34.4%
Long Lapse in Doctor's Visit	11.6%
Increased Ease of daughter to have sex	7.6%
Doubt of Efficacy	6.6%
Lack Insurance	5.6%
Don't know/non-response	6%

Side effects?

Table 6
Common Systemic Adverse Reactions in Boys and Men 9 Through 26 Years of Age
(GARDASIL ≥Control)*

Adverse Reactions (1 to 15 Days Postvaccination)	GARDASIL (N = 3093) %	AAHS Control** or Saline Placebo (N = 2303) %
Headache	12.3	11.2
Pyrexia	8.3	6.5
Oropharyngeal pain	2.8	2.1
Diarrhea	2.7	2.2
Nasopharyngitis	2.6	2.6
Nausea	2.0	1.0
Upper respiratory tract infection	1.5	1.0
Abdominal pain upper	1.4	1.4
Myalgia	1.3	0.7
Dizziness	1.2	0.9
Vomiting	1.0	0.8

Responding to Parental Concerns about Age

Things Parents Say: ¹

- " We're going to wait on [Gardasil]...she's not even in high school yet...we're just going to wait and see...maybe when she's 16 or 17." *Mother, age 44*
- "I think I would wait until she's a little bit older, 15 or 16. I just don't think they need it right now, at 13...it's young." *Mother, age 48*
- "[The HPV vaccine] is appropriate for when girls start dating, and things along those lines." *Mother, age 45*

Educating Parents^{2,3}

- Early Age is the best time!
- Needs to be completely immunized before sexual debut for the vaccine to be most effective!
- Early Adolescents have better immune response to the vaccine! occurs in the early adolescence compared to later adolescence²
- Vaccination does not move up the timeline for initiation of sexual behavior³

We can't do the Sex Talk, our 12 year old child is too young?

- Reality

- Parents don't have to do it today, BUT.....
- This age is a good one to start talking about puberty
- Cognitively capable of handling the basics
- Girls are pubertal, many are almost done
- External exposures
- Parental perspectives matters & they can control the content

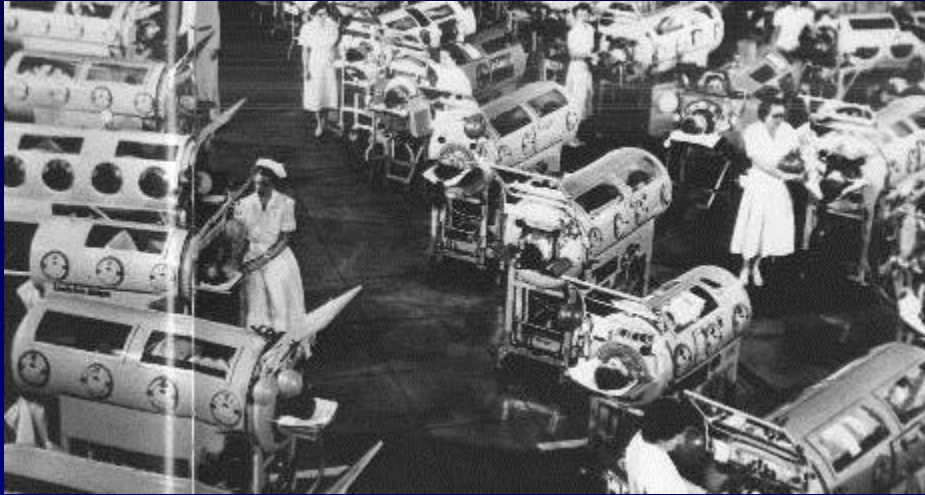
This vaccine IS all about SEX!

Not Really.....



- Public Health Issue
- STI /Cancer outcomes
- Hepatitis B (HBV)--Infants immunized at DOL #2
 - Similar safety profile
 - Same adjuvant in HPV4 and HBV
 - Similar risk profile
- No one imagines this infant will need HBV
- No need to imagine your teen will need HPV to immunize them

Keep In Mind.....

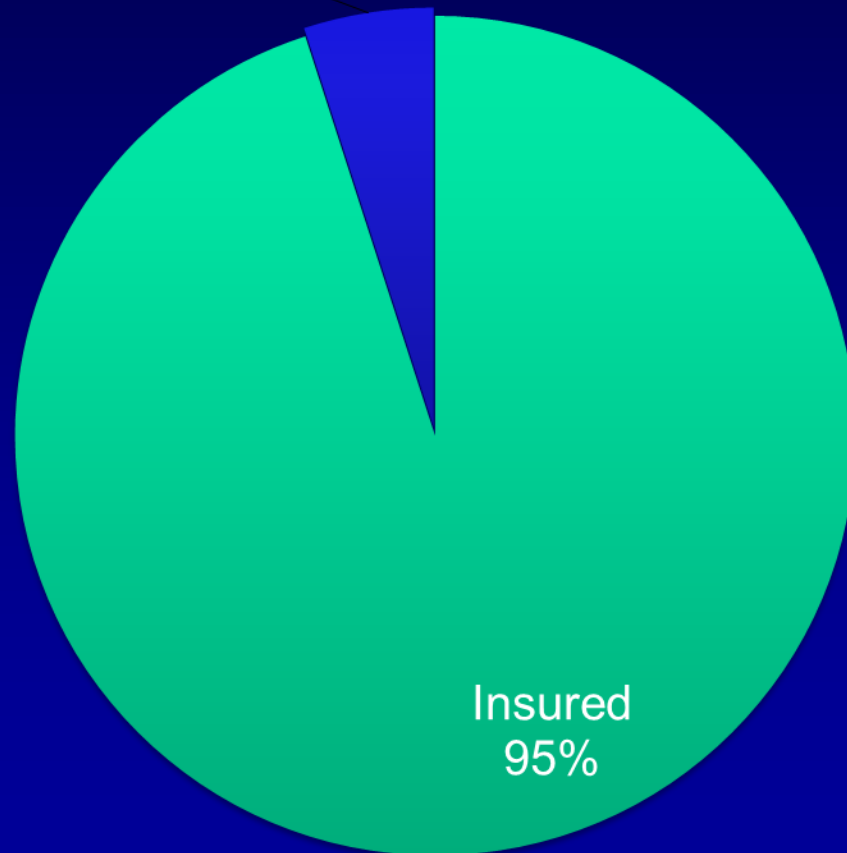


Vaccination is one of the Ten Great Public Health Achievements in the United States



Child [Adolescent] Health Transformation 3.0 in Era of the Affordable Care Act

d Insurance Status of Adolescents <18 y
Baltimore

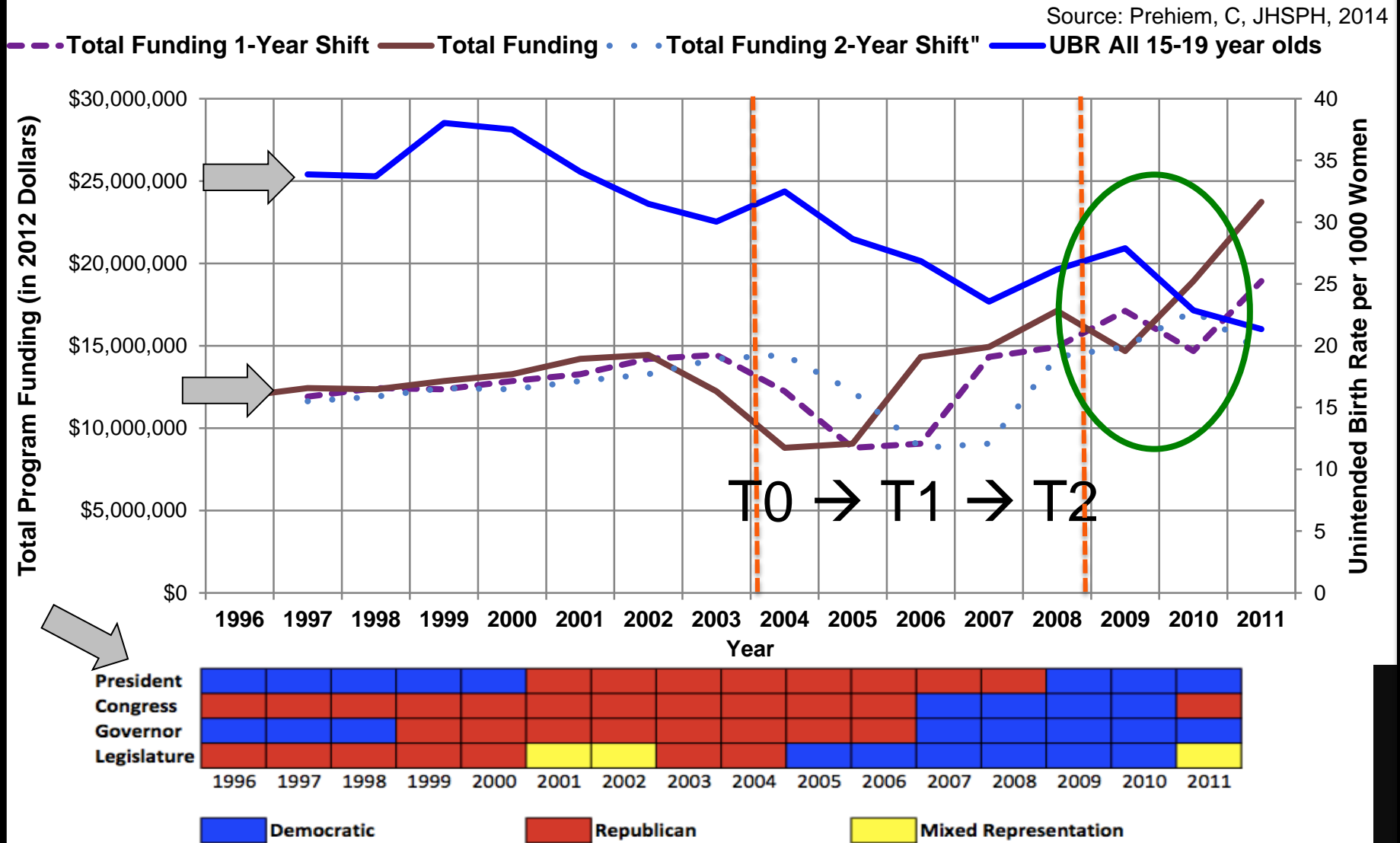


- Dismantling Public Health System
- Limiting Public Health Funds



Impact on Health
Disparities?
How to use ACA for
Adolescents?

UBR, Funding, & Political Leadership



What Can the Public Health Practitioners Can Do?



1. Promote sexual safety for all young women
2. Monitor treatment adherence to the CDC Guidelines
3. Develop effective vaccine implementation strategies for adolescents to prevent STIs and cancer-related complications
4. Creatively Re-build STI/HIV Public Health Screening & Treatment Programs in Accountable Care Organizations Post-ACA

